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10/664,687	09/16/2003	Cary R. Bybee	200207269	4097

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HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER	
DICHT, RACHEL S	

ART UNIT	PAPER NUMBER
2853	

DATE MAILED: 11/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/664,687	BYBEE ET AL.	
	Examiner	Art Unit	
	Rachel Dicht	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-75* is/are pending in the application.

4a) Of the above claim(s) *9-16,18-29,47-57,60 and 64-68* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,17,30-46,58,59,61-63 and 69-74* is/are rejected.

7)☒ Claim(s) *75* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 3, 4, 8, 17, 35, 38, 39, 40, 43, 46, 69, 71, 72, 73, and 74 are rejected under 35 U.S.C. 102(b) as being anticipated by Clark et al. (US Pat. No. 5,734,401).

In regard to:

Claim 1:

Clark et al. teaches an ink delivery apparatus (10, Fig. 1) comprising a chamber (12 and 14, Fig. 2) configured to contain ink, said chamber having a proximal end (90 and 92, Fig. 3), and opposing side portions (left and right side portions of Fig 6) having at least one section with a tapered thickness (left and right side portions of Fig. 6) configured to support said chamber and to facilitate at least partial controlled collapse of said chamber in response to a negative pressure (refer to column 4 lines 1-5, 22-24 and 43-47).

Claim 2:

Clark et al. teaches an ink delivery apparatus (10, Fig. 1) wherein said chamber (12 and 14, Fig. 2) further comprises a distal end opposite said proximal end, said distal end being rounded (sides of casing 12, Figs. 2, 3, 5, and 6).

Claim 3:

Clark et al. teaches an ink delivery apparatus further comprising at least one section having a tapered thickness in each of said opposing side portions (refer to left and right side portions of Fig. 6).

Claim 4:

Clark et al. teaches an ink delivery apparatus wherein each opposing side portion comprises a central portion with thickness that decreases to either side of said central portion (refer to left and right side portions of Fig. 6).

Claim 8:

Clark et al. teaches an ink delivery apparatus further comprising a fitment (22, Fig. 2) coupled to said proximal end (90 and 92, Fig. 2) of said chamber (refer to column 3 lines 31-34).

Claim 17:

Clark et al. teaches on ink delivery assembly comprising, at least one pressure tuned ink chamber (14, Fig. 2) having a proximal end (90 and 92, Fig. 2) and a distal end (sides of casing 12, Figs. 2, 3, 5, and 6); and a first pair of opposing side walls, each said wall having a thickness and a section where said thickness tapers (left and right side portions of Fig. 6), and a fitment (22, Fig. 2) coupled to said chamber.

Claim 35:

Clark et al. teaches a print device comprising at least one pressure tuned ink chamber (14, Fig. 2) having a proximal end (90 and 92, Fig. 2) and a distal end (sides of casing 12, Figs. 2, 3, 5, and 6); and a first pair of opposing side walls, each said wall having a thickness and a section where said thickness tapers (left and right side portions of Fig. 6); and a fitment (22, Fig. 2) coupled with said chamber having fluid interconnect (36, Fig. 2), and a print head coupled to said fitment (refer to column 7 lines 1-3).

Claim 38:

This claim is rejected on the basis set forth for claim 4 as discussed above.

Claim 39 and 40:

This claim is rejected on the basis set forth for claim 30 and 31 as discussed above.

Claim 43:

Clark et al. teaches a device wherein said fluid interconnect (22, Fig. 2) is configured to fluidly couple a print head and said chamber (14, Fig. 2), and further comprising a second fluid interconnect (16, Fig. 2), said second fluid

interconnect being configured to fluidly couple an ink supply and said chamber (refer to column 3 lines 46-52).

Claim 46:

This claim is rejected on the basis set forth for claim 34 as discussed above.

Claim 69:

Clark et al. teaches an apparatus wherein said opposing side portions allows said chamber to resiliently expand in response to a change in ambient conditions so as to maintain said negative pressure within a predetermined range (refer to column 8 lines 51-55).

Claim 71 and 73:

Clark et al. teaches and assembly further comprising a second pair of opposite side portions (top and bottom portions of Fig. 6) joining said first pair of opposing side portions (left and right side portions of Fig. 6) to form said chamber, said second pair of opposing side portions being rounded.

Claim 72 and 74:

Clark et al. teaches an assembly wherein said sections of tapered thickness of said first pair of opposing side portions (left and right side portions of

Fig. 6) support said chamber while allowing a controlled collapse of said chamber in response to a negative pressure within said chamber (refer to column 4 lines 1-5, 22-24 and 43-47)

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 5, 6, and 7 are rejected under 35 U.S.C. 103(a) as being obvious over Clark et al. (US Pat. No. 5,734,401) in view of Pawlowski, Jr. (US Pat. No. 5,646,664).

In regard to:

Claim 5:

The device of Clark et al. DIFFERS from claim 5 in that it fails to teach an ink delivery apparatus further comprising rounded side portions at ends of said opposing side portions.

However, Pawlowski, Jr. teaches an ink delivery apparatus further comprising rounded side portions at ends of said opposing side portions (refer to Fig. 2).

Claim 6:

The device of Clark et al. DIFFERS from claim 6 in that it fails to teach a chamber comprising an elastomeric material.

However, Pawlowski, Jr. teaches a chamber comprising an elastomeric material (refer to column 2 lines 14-17).

Claim 7:

The device of Clark et al DIFFERES from claim 7 in that it fails to teach a chamber comprising a EDPM/Butyl material.

However, Clark et al. in view of Pawlowski, Jr. discloses the claimed invention except for the material the ink chamber is made of. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the chamber to be made of EDPM/Butyl, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of it's suitability for the intended use for the purpose of having a flexible ink chamber that is partially collapsible. *In re Leshin,* 125 USPQ 416.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Clark et al. to

incorporate rounded side portions as taught by Pawlowski, Jr. for the purpose of providing sturdy outer shell.

5. Claims 30, 31, 33, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clark et al. (US Pat. No. 5,734,401).

In regard to:

Claim 30 and 31:

Incorporating all arguments of claim 17 above, it is noted that Clark et al. fails to teach the ink delivery assembly further comprising a plurality of pressure tuned ink chambers.

However, Clark et al. discloses the claimed invention except for the plurality of pressure tuned ink chambers. It would have been obvious to one having ordinary skill in the art at the time the invention was made to include more than one ink chamber for multi-color printing, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Claim 33:

Clark et al. teaches an ink delivery assembly further comprising a sealing gasket (32, Fig. 2) disposed at least partially between said plurality of chamber and said fitment (22, Fig. 2) (refer to column 3 lines 50-51).

Claim 34:

Clark et al. teaches an ink delivery assembly wherein said fitment (22, Fig. 2) is configured to be coupled to a print head (refer to column 7 lines 1-3).

6. Claims 32, 41, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clark et al. (US Pat. No. 5,734,401) in view of Ikkatai et al. (US Pat. No. 6,276,784).

In regard to:

Claims 32 and 41:

The device of Clark et al. DIFFERS from claim 32 in that it fails to teach an assembly wherein said plurality of pressure tuned ink chambers comprises a plurality of ink colors, each color being separately contained with in one of said plurality of chamber.

However, Ikkatai et al. teaches an assembly wherein said plurality of pressure tuned ink chambers (3, Fig. 2) comprises a plurality of ink colors, each color being separately contained with in one of said plurality of chambers (refer to column 4 lines 40-44).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Clark et al. to

incorporate a plurality of pressure tuned ink chambers comprising a plurality of colors as taught by Ikkatai et al. for the purpose of multicolor printing.

Claim 42:

This claim is rejected on the basis set forth for claim 33 as discusses above.

7. Claims 36, 37, and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clark et al. (US Pat. No. 5,734,401) in view of Dunn et al. (US Pat. No. 5,153,612).

In regard to:

Claim 36:

The device of Clark et al. DIFFERS from claim 36 in that it fails to teach a print device further comprising a bubble generator in said fitment.

However, Dunn et al. teaches a print device further comprising a bubble generator (70, Fig. 2) in said fitment (28, Fig. 2) (refer to column 5 line 48-50 and column 6 lines 11-13).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Clark et al. to

incorporate a bubble generator as taught by Dunn et al. for the purpose of regulating the back pressure in the chamber to allow the ink to flow more freely.

Claim 37:

The device of Clark et al. DIFFERS from claim 37 in that it fails to teach a print device configured to at least partially collapse in response to a negative pressure to maintain said negative pressure within a determined range.

However, Dunn et al. teaches a print device configured to at least partially collapse in response to a negative pressure to maintain said negative pressure within a determined range (refer to column 5 lines 55-57 and lines 62-68 (refer to column 5 lines 48-50 and column 6 lines 11-13).

Claim 70:

Clark et al. teaches an apparatus wherein said controlled collapse comprises a decrease in a distance between said opposing side portions (refer to Figs. 3 and 4) (refer to column 5 lines 55-57).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Clark et al. to have a chamber configured to at least partially collapse in response to a negative

pressure as taught by Dunn et al. for the purpose of preventing ink from permeating through the print head when the pen is inactive.

8. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Clark et al. (US Pat. No. 5,734,401) in view of Ikkatai et al (US Pat. No. 6,276,784).

The device of Clark et al. DIFFERS from claim 44 in that it fails to teach a device wherein said chamber comprises an off-axis ink supply.

However, Ikkatai et al. teaches a device wherein said chamber (3, Fig. 1) comprises an off-axis in supply (2, Fig 1) (refer to column 4 lines 40-47).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Clark et al. to incorporate an off-axis ink supply as taught by Ikkatai et al. for the purpose of supplying a larger capacity of ink to the print head.

9. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Clark et al. (US Pat. No. 5,734,401) in view of Scheffelin et al. (US Pat. No. 5,745,137).

The device of Clark et al. DIFFERS from claim 45 in that it fails to teach a device wherein said chamber comprises an on-axis ink supply.

However, Scheffelin et al. teaches a device wherein said chamber (10 and 25, Fig. 1) comprises an on-axis ink supply (238, Fig. 9; 1101A, Fig. 11) (refer to column 7 lines 40-42).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Clark et al. to incorporate an on-axis ink supply as taught by Scheffelin et al. for the purpose of ensuring more accurate printing caused by a lack of vibrations.

10. Claims 58, 59, 61, 62, and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunn et al. (US Pat. No. 5,153,612) in view of Clark et al. (US Pat. No. 5,734,401).

In regard to:

Claim 58:

Dunn et al. teaches a method of delivering liquid ink, comprising: providing at least one pressure tuned ink chamber (22 and 24, Fig. 1) containing an ink; establishing a negative pressure in said chamber (refer to column 5 lines 30-32); supplying said ink (60 and 58, Fig. 2) to a print head (26, Fig. 2); regulating a level of said negative pressure within a pre-determined range using said section of tapered wall thickness, while at least partially resiliently collapsing a portion of said chamber in response to said negative pressure (refer to column 4 lines 1-5).

It is noted, however, that Dunn et al. fails to teach said chamber including side walls comprising at least one section with a wall thickness that tapers.

However, Clark et al. teaches said chamber including side walls comprising at least one section with a wall thickness that tapers (left and right side portions of Fig. 6).

Claim 59:

Dunn et al. teaches a method wherein said regulating negative pressure comprises substantially resiliently collapsing said chamber over said pre-determined range of said negative pressure (refer to column 6 lines 5-13).

Claim 61:

The device of Dunn et al. DIFFERS from claim 61 in that it fails to teach a method of delivering liquid ink further comprising monitoring a level of ink in said chamber.

However, Clark et al. teaches a method of delivering liquid ink further comprising monitoring a level of ink in said chamber (refer to column 8 lines 51-53).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Dunn et al. to include a monitory system as taught by Clark et al. for the purpose of extending the life of the print head by preventing "dry" firing of the ink jets.

Claim 62:

The device of Dunn et al. DIFFERS from claim 62 in that it fails to teach a method of delivering liquid ink further providing notification of a substantial increase in said negative pressure.

However, the Clark et al. teaches a method of delivering liquid ink further providing notification of a substantial increase in said negative pressure (refer to column 8 lines 45-53).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include a notification system as taught by Clark et al. for the purpose of extending the life of the print head by preventing "dry" firing of the ink jets.

Claim 63:

Dunn et al. discloses the claimed invention except for a method of delivering ink providing a plurality of said pressure tuned ink supply chambers. It

would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Dunn et al. to include a plurality of pressure tuned ink supply chambers, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.,* 193 USPQ 8.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Dunn et al. to incorporate opposing tapered side portions as taught by Clark et al. for the purpose of protecting the partially collapsible supply means.

Allowable Subject Matter

11. Claim 75 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter: The primary reason for the allowance of claim 75 is the inclusion of the limitation of:

Claim 75:

Clark et al. teaches a method further comprising resiliently expanding said chamber in response to a change in ambient conditions so as to maintain said negative pressure within said pre-determined range, **said section of tapered wall thickness facilitating said expanding**.

It is this limitation found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

Response to Arguments

13. Applicant's arguments filed 19 October 2005 have been fully considered but they are not persuasive. The applicant argues in regard to claims 1, 17 and 35 that Clark et al. fails to teach or suggest the claimed apparatus with a chamber having opposing side portions with at least one section with a tapered thickness configured to support said chamber and to facilitate at least partial controlled collapse of said chamber in response to a negative pressure. The examiner does not agree. It can be seen in Fig. 6 that the left and right side walls of the chassis 16 are thicker in the middle and slowly decrease in thickness as it nears the rounded end portions. It can also be seen in column 4 lines 1-5, 22-24, and 43-47 that when a negative pressure is present the flexible chamber flexes so as to eject ink.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rachel Dicht whose telephone number is 571-272-8544. The examiner can normally be reached on 7:00 am - 3:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RSD

October 31, 2005

11/4/05

MANISH S. SHAH
PRIMARY EXAMINER